CUSTOMER SUCCESS STORY

CITY OF FREDERICTON CREATES FREE, CITY-WIDE WIRELESS NETWORK, WITH HELP FROM CISCO

EXECUTIVE SUMMARY

CUSTOMER

- City of Fredericton, New Brunswick, Canada

INDUSTRY

- Local government

RESIDENTS

- 85,000

BUSINESS CHALLENGE

- Compete against better known-cities on the Eastern seaboard
- Encourage economic development by attracting and retaining technology companies
- Continue to take full advantage of the city's existing IP infrastructure investment

NETWORK SOLUTION

- Cisco community area wireless networking

BUSINESS VALUE

- Promotes Fredericton as an technically innovative, business-friendly city
- Cost-effectively provides mobile city workers with innovative tools to do their jobs
- Establishes a network foundation from which to launch new, productivity-enhancing applications

Free City-wide Wi-Fi Network Connects for the Future and Attracts Business Opportunities

With help from Cisco, the City of Fredericton created the "Fred-eZone," a free, city-wide wireless network. This innovative 21st century economic development tool is helping attract and retain knowledge-based companies and computer-savvy residents.

BUSINESS CHALLENGE

The city of Fredericton, the capital of the province of New Brunswick in eastern Canada, has high hopes for its future. It may not have the bright lights or urban atmosphere of Toronto or Boston, but it's got vision. Home to numerous federal government offices, two universities, and several research centers, Fredericton boasts the highest number of engineers per capita in Canada. Dozens of information technology, engineering, and consulting firms based in Fredericton do business worldwide.

To differentiate itself from other communities, and retain and attract more technology companies, Fredericton city leaders knew they had to offer more than the prospect of good schools, a highly educated populous, affordable housing, and lovely river-side ambiance. In 2004, Fredericton became the first city in Canada and one of few in North America to achieve International Organization of Standardization (ISO) 9001:2000 certification, a rigorous international management quality standard encompassing policies, procedures, technologies, and resources.

City of Fredericton

"We want to give our business community and professionals the best possible tools and promote Fredericton as an innovative, business-friendly city," explains Maurice Gallant, chief information officer (CIO) for the city of Fredericton.

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In 2000, the city built a fiber-optic network with business and community partners to deliver low-cost broadband connectivity to government agencies, businesses, and educational institutions. Twenty-five kilometers of fiber cover the major downtown area; point-to-point wireless technology connects remote sites such as the nearby airport.

Three years later, to further encourage economic development, Fredericton once again turned to advanced technology. Gallant and Don Fitzgerald, executive director of Team Fredericton, the city's economic development department, came up with the idea of building a not-for-profit, community-wide, high-speed Wi-Fi wireless network to offer residents and businesses free or highly discounted Internet access.

The city council not only embraced the idea, it issued its own challenge. As Fitzgerald recalls, "The council members told us our timeline was not aggressive enough, gave us more money, and asked us to complete the project in half the time originally allotted. I'm very thankful that we have a visionary council, but that presented us with some real deployment challenges."

Gallant and his staff had been experimenting with 802.11 wireless technologies from various vendors in their testing lab, but suddenly they had to prepare for prime time.

NETWORK SOLUTION

When the city's IT staff began to discuss the idea of the city's community-based Wi-Fi network project with other city organizations, no one quite believed it could be done. "But we knew that we could achieve our goals if we found the right partner," Gallant says. "We wanted someone that had a proven track record, the expertise, and the right product set."

Gallant approached top networking vendors along with local telecommunications and cable companies and issued a formal "expression of interest" request. According to Gallant, Cisco Systems® came in with a superior solution because its access points could be configured and monitored with sophisticated remote-access software. He summarizes, "Cisco® got it; the Cisco team essentially said, 'Yes, we can do this. In some areas, we'll need to do some additional engineering, but we can do that together.'"

"The Cisco team worked tirelessly with us to fine tune the signal overlays, resolve radio signal interference issues, and educate our people so we could sustain the network after it was completed. It's this kind of aftercare, the concern for us after the sale was completed, that was really refreshing."

— Maurice Gallant, Chief Information Officer, Fredericton, New Brunswick

The involvement of an industry leader like Cisco lent additional credibility to the project, and partners in the community began to step forward and provide infrastructure such as rooftops, electricity, and retransmission sites. The local office of the Canadian National Resource Council also provided expertise and suggestions, and "Fred-eZone," a 802.11g Wi-Fi community network, became a reality.

Fred-eZone consists of over 200 Cisco Aironet® 1200 Series access points (APs) located throughout the city and airport—essentially forming one large, almost contiguous hot spot. Fred-eZone covers an area of almost 30 square kilometers (11.5 square miles) or 48 percent of the city. The Aironet APs have proven a good fit because of their rugged design, antenna versatility, and broad operating temperature range. But absolutely critical to the Fred-eZone implementation is the remote management and monitoring capabilities of the Cisco Wireless LAN Solution Engine (WLSE). APs at the edge of the network are aggregated on assigned virtual LANs (VLANs) using Cisco Catalyst® 2940 switches which connect back to a Layer 3 Cisco Catalyst® 3750 Switch, the community network core router. Ultimately, all traffic destined for the Internet is routed through a Cisco 2821 Integrated Services Router which serves as the network Internet gateway.

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Fred-eZone is an open-access network, so access control is not a concern for Gallant and his IT staff, but denial of service and other Internet threats are. Cisco IOS® Software security and management capabilities enable Gallant and his staff to easily monitor and troubleshoot the network and respond to any attacks. Gallant notes that the reliability of the wireless network has been impressive; the city has seen very little down time.

The Fredericton IT department completed the Fred-eZone project on budget, and on schedule, and both Gallant and Fitzgerald attribute their success to their project partners. Says Fitzgerald, "The Cisco sales and technical team and the company's local resellers were really anxious to get involved beyond simply just selling us equipment, and that's made a huge difference in our project."

Gallant agrees. "The Cisco team worked tirelessly with us to fine tune the signal overlays, resolve radio signal interference issues, and educate our people so we could sustain the network after it was completed. It's this kind of aftercare, the concern for us after the sale was completed, that was really refreshing."

BUSINESS VALUE

With Fred-eZone, the city hopes to attract and retain residents, businesses, and students, who will become the next wave of entrepreneurs.

New Brunswick business leaders heartily support the city's efforts. Ryck Bourgette, general manager, Fredericton Mall, remarks, "Fred-eZone opens up a world of opportunities to work with. I have stores like Staples who are being given new industry capabilities, while computer stores are selling adapters and upgrades." John McLaughlin, University of New Brunswick president, says the network has benefited the university significantly. "We live in a time with intense competition for student and research dollars. To have a competitive edge, we need to not only attract the best and brightest faculty, we must also create an innovative environment and community."

As Fitzgerald points out, "As a municipality, we already provide infrastructure—roads, sidewalks, and water distribution systems—we're just adding connectivity to the list. Projects like Fred-eZone contribute to Fredericton's image as a smart, progressive city, a place where people want to live, play, learn, and work."

"One of the things that makes our Wi-Fi network so cost effective is the cooperative model we use," Gallant continues. "Institution, government, and business customers contract for certain amounts of network bandwidth that we manage. But since our customers seldom consume their maximum allotment, we take that unused surplus and make it available to the Wi-Fi network. That's how we're able to fund the free service with a minimum impact to our revenue and expense statement."

Fred-eZone also gives Fredericton's city staff widespread access to the network tools they use to do their jobs. "It's not productive for our workforce in the field to run back to home base every time they need access to a document or look up information," reasons Gallant. "Having the right technology in place makes our municipal staff more nimble, more efficient, and more productive."

It didn't take Fredericton's Fred-eZone project long to attract attention. "Our Fred-eZone implementation has created more publicity and attention throughout North America than any other single thing we've done," admits Fitzgerald. Stories have appeared in major Eastern city newspapers and on Web sites worldwide and, last year, the city won the national Canadian Information Productivity Award (CIPA), in recognition of its IT innovation and implementation excellence.

NEXT STEPS

Gallant explains that Fredericton was able to cost-effectively build out its wireless network because the IP network foundation was already in place. And the IT staff continues to introduce new cost-saving technologies and services to get the most out of its Cisco IP Communications infrastructure. The IT staff has begun to test voice-over-IP (VoIP) services over the wireless network using Cisco Call Manager voice management software. If adopted, mobile city workers will be able to make calls using special IP-enabled PDAs anywhere within the city's hot spot range. Fredericton hopes to see net savings of up to CA$80,000 per year on telephone, cell phone, and land mobile radio (LMR) transmission expenses by deploying wireless VoIP, plus lots of added functionality.

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The city IT staff also plans to test wireless Web camera technology for property perimeter surveillance, and traffic and traffic signal monitoring. “Rather than travel back to a base station to obtain signal history or manage signal synchronization, our engineers will handle it from the field,” Gallant explains.

Gallant has some advice for cities contemplating a project like Fred-e-Zone, “While municipalities have some core expertise and infrastructure, we are not typically experts at telecommunication or communication technology, so surround yourself with partners like Cisco who know what they’re doing.”

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This customer story is based on information provided by the City of Fredericton, New Brunswick, Canada, and describes how that particular organization benefits from the deployment of Cisco products. Many factors may have contributed to the results and benefits described; Cisco does not guarantee comparable results elsewhere.

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